

WHAT IS CLAIMED IS:

1. A band-division demodulation method in which a transmission band of a received RF signal is band-divided into a plurality, each of signals said band-divided is OFDM-demodulated, and said demodulation results are synthesized, wherein the received RF signal is in-phase-distributed to said band division number, the band width that the entire band width of said received RF signal is divided by said band division number is used as a unit band width, each signal said distributed so as to be shifted stepwise by integral times of said unit band width is frequency-converted, each signal said frequency-converted is allowed to band-pass by filtering with the same characteristics to perform a band division, and said signal allowed to band-pass is OFDM-demodulated.

2. An OFDM receiver in which a transmission band of a received RF signal is band-divided into a plurality, each of signals said band-divided is OFDM-demodulated, and said demodulation results are synthesized, comprising:

a distribution section for receiving an RF signal and in-phase-distributing it to said band division number; a frequency conversion section for using, as a unit band width, the band width that the entire band width of said received RF signal is divided by said band division number, and frequency-converting each signal said distributed so as

to be shifted stepwise by integral times of said unit band width;

a band-pass filter section for allowing each signal said frequency-converted to band-pass with the same characteristics;

an OFDM demodulation section for OFDM-demodulating said signal allowed to band-pass; and

a synthesizing section for synthesizing an output from said OFDM demodulation section to output demodulated data.

3. The OFDM receiver according to claim 2, wherein said band-pass filter section is a band-pass filter section of the same characteristics for allowing a frequency band that each signal said frequency-converted has in common.

4. An OFDM receiver in which a transmission band of a received RF signal is band-divided into a plurality, each of signals said band-divided is OFDM-demodulated, and said demodulation results are synthesized, comprising:

a first frequency conversion section for receiving an RF signal and converting it into a first IF frequency band;

an AGC section for adjusting an output signal from said first frequency conversion section to a certain constant output level and outputting it;

an in-phase distributor for in-phase-distributing an

output from said AGC section into said band width division number;

5 a second frequency conversion section for using, as a unit band width, the band width that the entire band width of said received RF signal is divided by said band division number, and frequency-converting each output from said in-phase distributor so as to be shifted stepwise by integral times of said unit band width;

10 a band-pass filter section for allowing each signal said frequency-converted to band-pass with the same characteristics;

15 a third frequency conversion section for frequency-converting said each band-pass signal into a second IF frequency band;

an OFDM demodulation section for OFDM-demodulating an output from said third frequency conversion section; and

20 a P/S section for parallel-to-series-converting and synthesizing an output from said each OFDM demodulation section.

5. An OFDM receiver in which a transmission band of a received RF signal is band-divided into a plurality, each of signals said band-divided is OFDM-demodulated, and said demodulation results are synthesized, comprising:

25 an AGC section for receiving an RF signal, adjusting it to a certain constant output level, and outputting it; an in-phase distributor for in-phase-distributing an

output from said AGC section into said band width division number;

5 a fourth frequency conversion section for frequency-converting each output from said in-phase distributor, using, as a unit band width, the band width that the entire band width of said received RF signal is divided by said band division number, and frequency-converting each output from said in-phase distributor so as to be shifted stepwise by integral times of said unit band width;

10 a band-pass filter section for allowing each signal said frequency-converted to band-pass with the same characteristics;

15 a fifth frequency conversion section for frequency-converting said each band-pass signal into a second IF frequency band;

an OFDM demodulation section for OFDM-demodulating an output from said fifth frequency conversion section; and

20 a P/S section for parallel-to-series-converting and synthesizing an output from said each OFDM demodulation section.

25 6. An OFDM receiver in which a transmission band of a received RF signal is band-divided into a plurality, each of signals said band-divided is OFDM-demodulated, and said demodulation results are synthesized, comprising:

an AGC section for receiving an RF signal, adjusting it to a certain constant output level, and outputting it;

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an in-phase distributor for in-phase-distributing an output from said AGC section into said band width division number;

5 a fourth frequency conversion section for frequency-converting each output from said in-phase distributor, using, as a unit band width, the band width that the entire band width of said received RF signal is divided by said band division number, and frequency-converting each output from said in-phase distributor so as to be shifted stepwise by integral times of said unit band width;

10 a band-pass filter section for allowing each signal said frequency-converted to band-pass with the same characteristics;

15 an OFDM demodulation section for inputting an output from said band-pass filter section, under-sampling it by a frequency lower than a usual sampling frequency in accordance with the frequency of said input signal to convert it into a digital signal, and OFDM-demodulating it; and

20 a P/S section for parallel-to-series-converting and synthesizing an output from said each OFDM demodulation section.

25 7. A multi-carrier transmission system having a transmitter for OFDM-modulating and transmitting a transmission signal, and a receiver for receiving and OFDM-demodulating said radio transmission signal,

wherein said receiver is the OFDM receiver according

to claim 2.

8. A multi-carrier transmission system having a transmitter for OFDM-modulating and transmitting a transmission signal, and a receiver for receiving and OFDM-demodulating said radio transmission signal,

wherein said receiver is the OFDM receiver according to claim 3.

9. A multi-carrier transmission system having a transmitter for OFDM-modulating and transmitting a transmission signal, and a receiver for receiving and OFDM-demodulating said radio transmission signal,

wherein said receiver is the OFDM receiver according to claim 4.

10. A multi-carrier transmission system having a transmitter for OFDM-modulating and transmitting a transmission signal, and a receiver for receiving and OFDM-demodulating said radio transmission signal.

wherein said receiver is the OFDM receiver according to claim 5.

11. A multi-carrier transmission system having a transmitter for OFDM-modulating and transmitting a transmission signal, and a receiver for receiving and OFDM-demodulating said radio transmission signal,

wherein said receiver is the OFDM receiver according to claim 6.

12. A multi-carrier transmission system having a transmitter for OFDM-modulating and transmitting a transmission signal, and a receiver for receiving and OFDM-demodulating said radio transmission signal,

wherein said receiver is the OFDM receiver according to claim 7.